APPENDIX H

SUMMARY OF THE AIR QUALITY ANALYSIS
WITHIN THE DAKOTA, MINNESOTA &
EASTERN RAILROAD CORPORATION
POWDER RIVER BASIN
EXPANSION PROJECT EIS

Introduction

The following air quality impacts summary was taken from the Dakota, Minnesota & Eastern Railroad Corporation Powder River Basin Expansion Project Draft EIS.

Near Field Impacts to Air Pollutant Concentrations

Figure H-1 shows the maximum near field concentrations for criteria air pollutants for the worst-case emissions as percentages of the applicable national and Wyoming ambient air quality standards (NAAQS and WAAQS, respectively). The modeled cumulative concentration impacts are all in compliance with the NAAQS and WAAQS.

Figure H-2 shows the maximum near field concentrations for criteria air pollutants for the worst-case emissions as percentages for the applicable PSD class increments. All modeled cumulative concentration impacts, with the exception of the 24-hour particulate matter concentration, are all less than the PSD class II increments. This large potential impact may be due to the techniques used to model fugitive dust emissions from mining operations.

Figures H-1 and H-2 depict the following data:

Pollutant	**% NAAQS**		**% PSD**
	Monitored Background	Modeled Cumulative	Modeled Cumulative
SO2 annual	5.0	1.9	5.7
SO2 24-hour	3.1	3.2	9.2
SO2 3-hour	0.6	2.5	6.4
NO2 annual	16.5	3.4	13.4
PM10 annual	32.2	19.3	56.8
PM10 24-hour	30.7	45.0	224.8
PM2.5 annual	37.3	0.0	
PM2.5 24-hour	24.8	9.9	
CO 8-hour	15.0	0.0	
CO 1-hour	8.8	0.0	

Far Field Impacts to Air Pollutant Concentrations

Figure H-3 shows the maximum far field concentrations for criteria air pollutants for the worst-case emissions as percentages of the applicable NAAQS and WAAQS. The modeled cumulative concentration impacts are all less than 40 percent of the national standards.

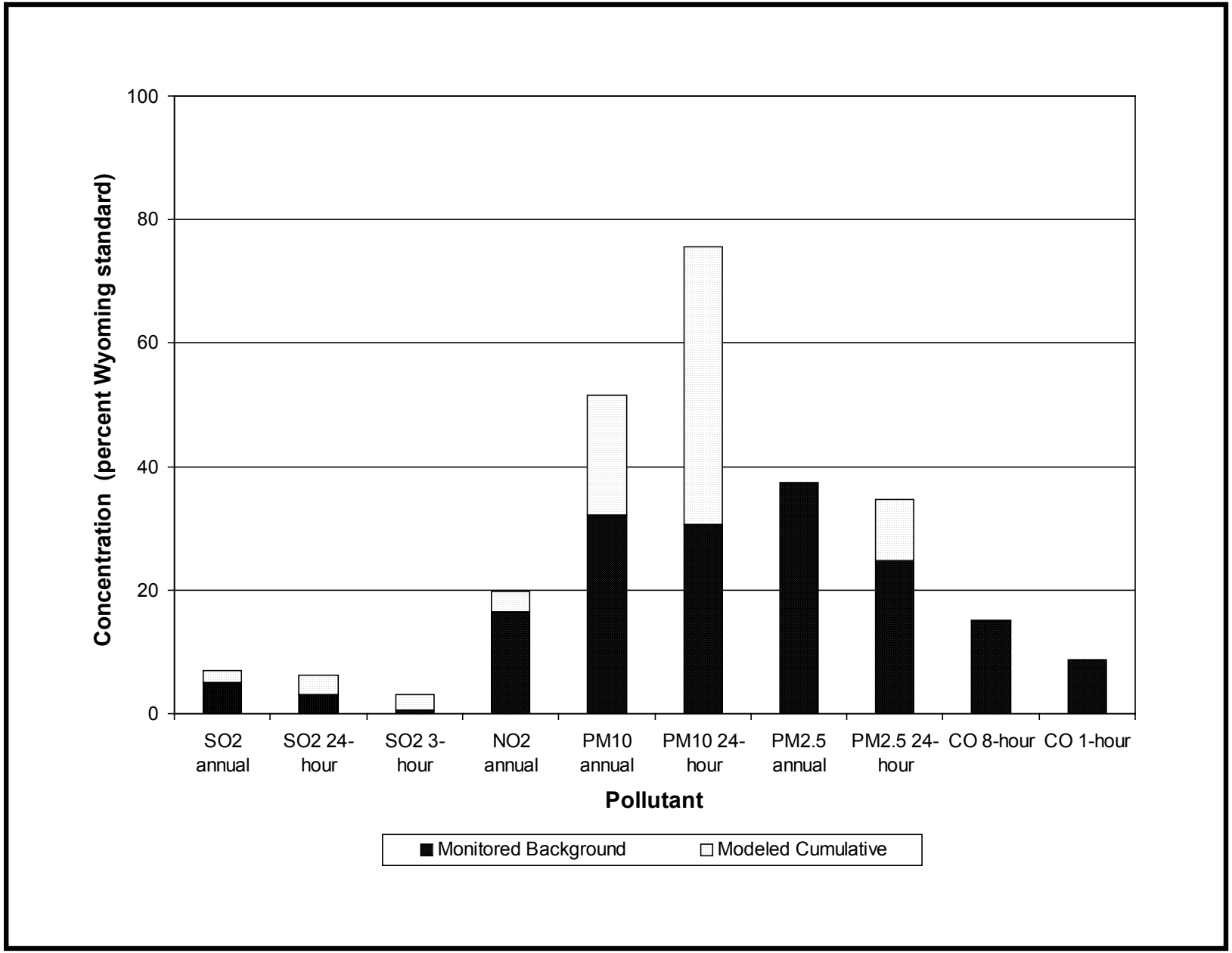

Figure H-1. Comparison of Air Pollutant Concentrations with Wyoming Ambient Air Quality Standards.

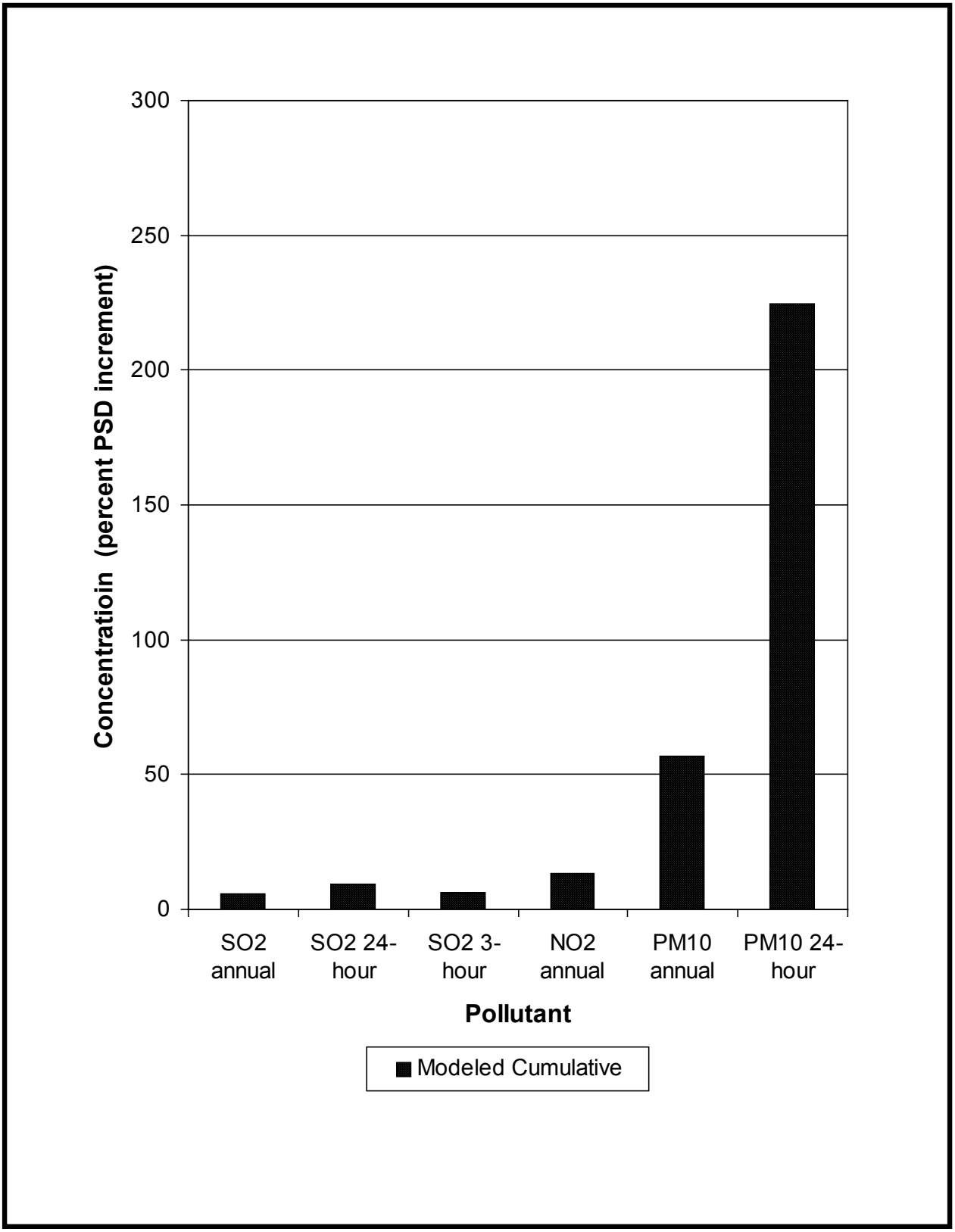

Figure H-2. Comparison of Air Pollutant Concentrations with Prevention of Significant Deterioration Increments.

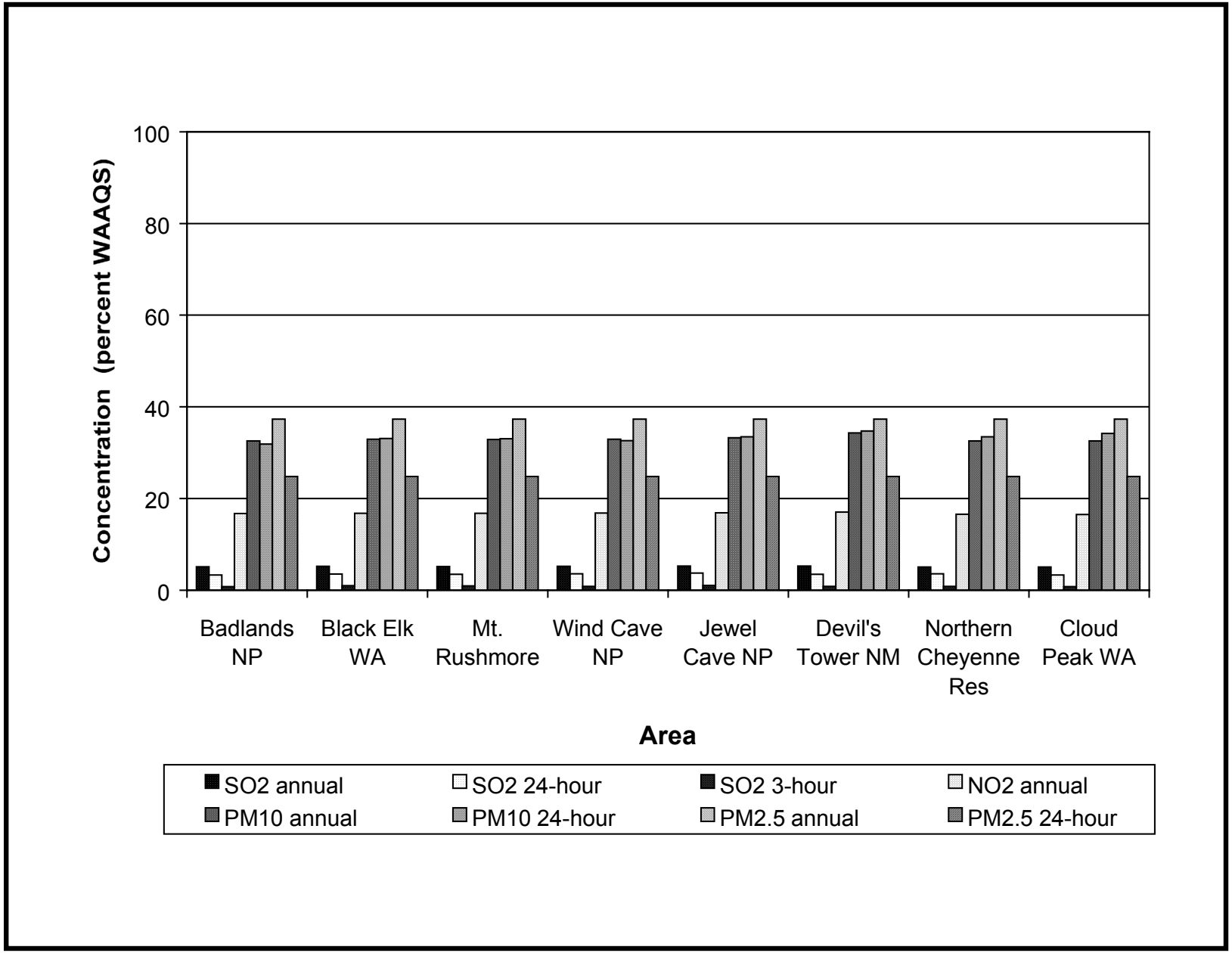

Figure H-3. Comparison of Air Pollutant Concentration with Wyoming Ambient Air Quality Standards.

Figure H-4 shows the maximum far field concentrations for criteria air pollutants for the worst-case emissions as percentages of the applicable Class I and Class II PSD increments. The modeled cumulative concentration impacts are all less than 40% of the PSD increments.

Figures H-3 and H-4 depict the following data:

Pollutant	**Total Impact (%WAAQS)**							
	Badlands NP	Black Elk WA	Mt. Rushmore	Wind Cave NP	Jewel Cave NP	Devil's Tower NM	Northern Cheyenne Res	Cloud Peak WA
SO2 annual	5.10	5.18	5.17	5.20	5.27	5.23	5.03	5.02
SO2 24-hour	3.30	3.51	3.48	3.50	3.71	3.46	3.54	3.29
SO2 3-hour	0.77	0.97	0.92	0.82	0.99	0.81	0.86	0.75
NO2 annual	16.74	16.77	16.76	16.83	16.88	17.01	16.57	16.53
PM10 annual	32.58	32.96	32.90	32.94	33.22	34.34	32.56	32.58
PM10 24-hour	31.90	33.12	33.07	32.62	33.45	34.77	33.50	34.21
PM2.5 annual	37.33	37.33	37.33	37.33	37.33	37.33	37.33	37.33
PM2.5 24-hour	24.82	24.78	24.78	24.80	24.78	24.78	24.78	24.77

Pollutant	**Cumulative Impact (%PSD)**							
	Badlands NP	Black Elk WA	Mt. Rushmore	Wind Cave NP	Jewel Cave NP	Devil's Tower NM	Northern Cheyenne Res	Cloud Peak WA
SO2 annual	3.00	0.55	0.05	6.00	0.80	0.70	1.00	0.05
SO2 24-hour	11.60	1.26	1.15	26.40	1.81	1.09	24.20	0.60
SO2 3-hour	7.88	0.91	0.77	10.76	0.96	0.52	12.76	0.33
NO2 annual	12.00	1.08	1.04	16.50	1.52	2.04	3.50	0.12
PM10 annual	4.75	2.24	2.06	9.25	3.00	6.29	4.50	1.12
PM10 24-hour	23.12	12.27	12.03	36.63	13.90	20.53	53.13	17.70

Cumulative Acid Deposition Impacts

Figure H-5 shows the potential deposition rate for sulphur and nitrogen over Florence Lake (Cloud Peak Wilderness Area), Badlands National Park and Wind Cave National Park for the worst-case emissions. The modeled cumulative acid deposition impacts are all less than 0.2 kilograms per hectare per year. A deposition rate of at least 10 kilograms per hectare per year would be considered significant.

Acid deposition impacts are also compared to the USFS level of acceptable change in acid neutralizing capacity (ANC). The potential worst case impact to ANC in Cloud Peak Wilderness Area is less than 20 percent of the USFS level of acceptable change.

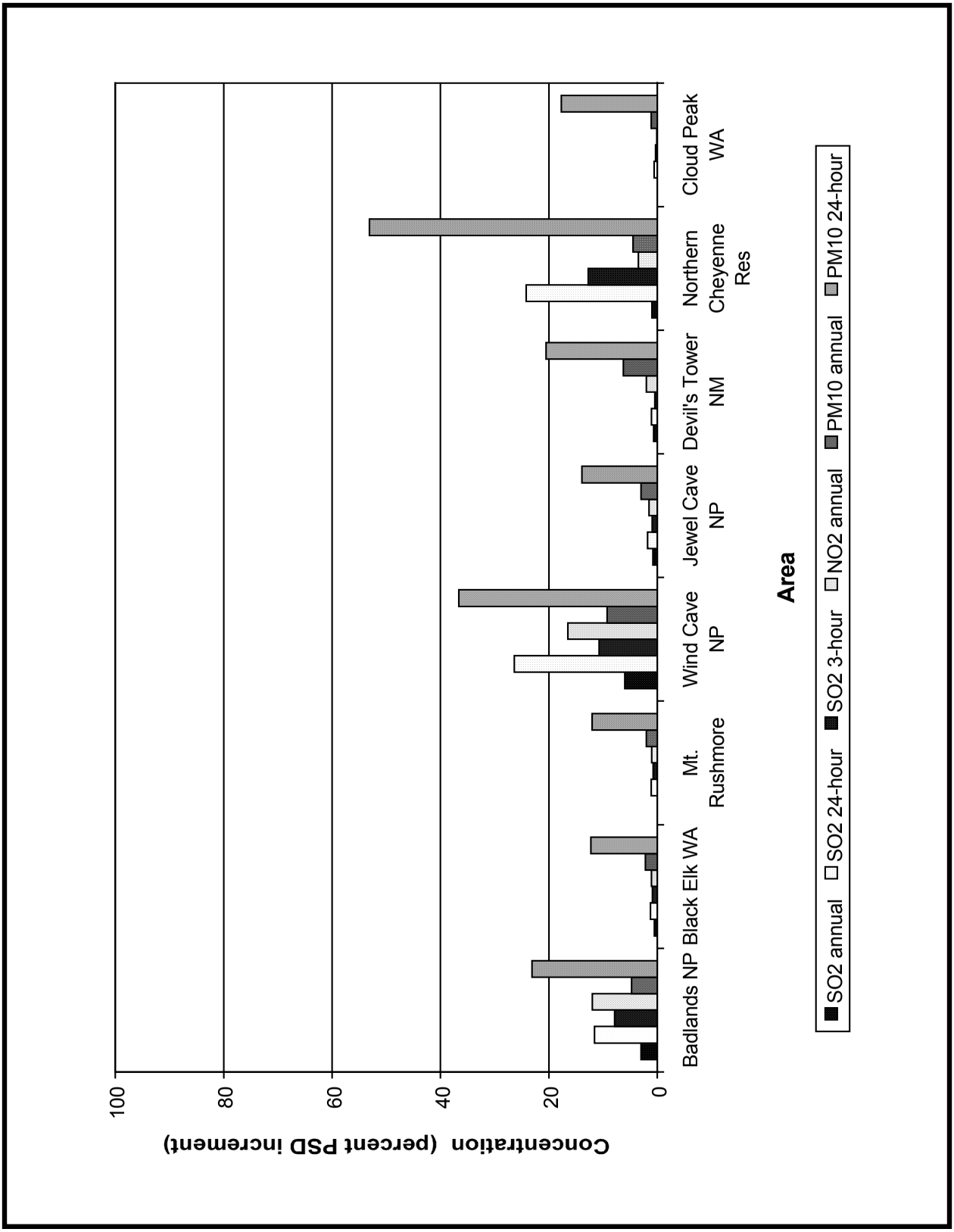

Figure H-4. Comparison of Air Pollutant Concentrations with Prevention of Significant Deterioration Increments.

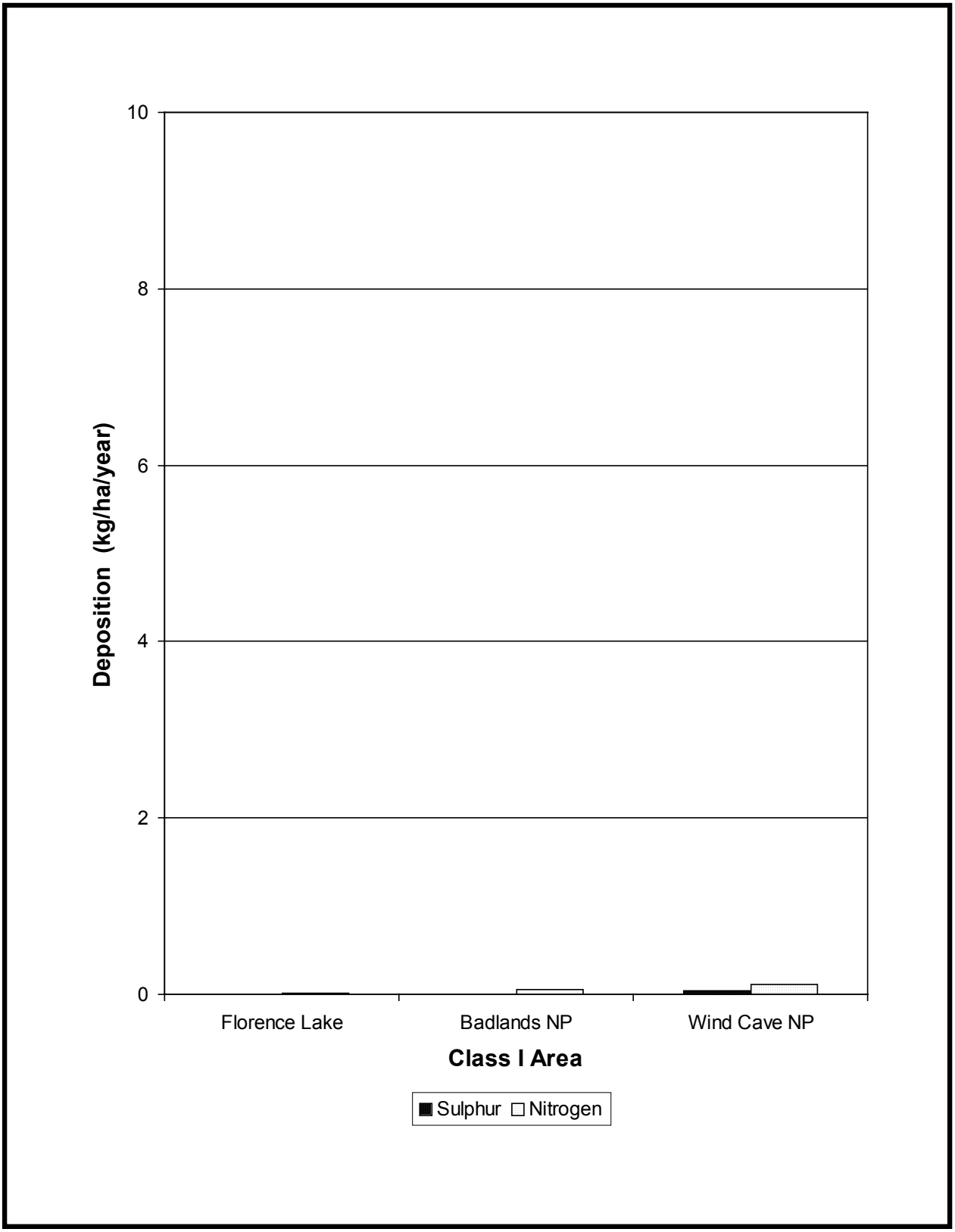

Figure H-5. Acid Deposition.

Figure H-5 depicts the following data:

Pollutant	**Acid Deposion (kg/ha/year)**		
	Florence Lake	Badlands NP	Wind Cave NP
Sulphur	0.00064	0.0016	0.047
Nitrogen	0.0149	0.0536	0.1124

Cumulative Impacts to Visibility

Figure H-6 shows the potential worst-case visibility impacts in nearby National Parks, National Monuments, Wilderness Areas and an Indian Reservation. Visibility impacts to Devil's Tower National Monument could be up to 150 days with a 5 percent or greater increase in haziness, and up to 74 days with a 10 percent or greater increase in haziness. The greatest increase could potentially be almost 80 percent hazier than the cleanest visibility.

Figure H-6 depicts the following data:

	Badlands NP	Black Elk WA	Mt. Rushmore	Wind Cave NP	Jewel Cave NP	Devil's Tower NM	Northern Cheyenne Res.	Cloud Peak WA
Number of days > 5%	82	85	80	92	105	150	41	35
Number of days > 10%	33	33	30	34	44	74	24	20
Maximum %	29.1	27.5	26.1	29.7	32.7	77.4	84.7	47.1

References and Personal Contacts

This summary was compiled from the air quality analysis within the DM&E Railroad Corporation Powder River Basin Expansion Project Draft EIS by Susan Caplan of the BLM.

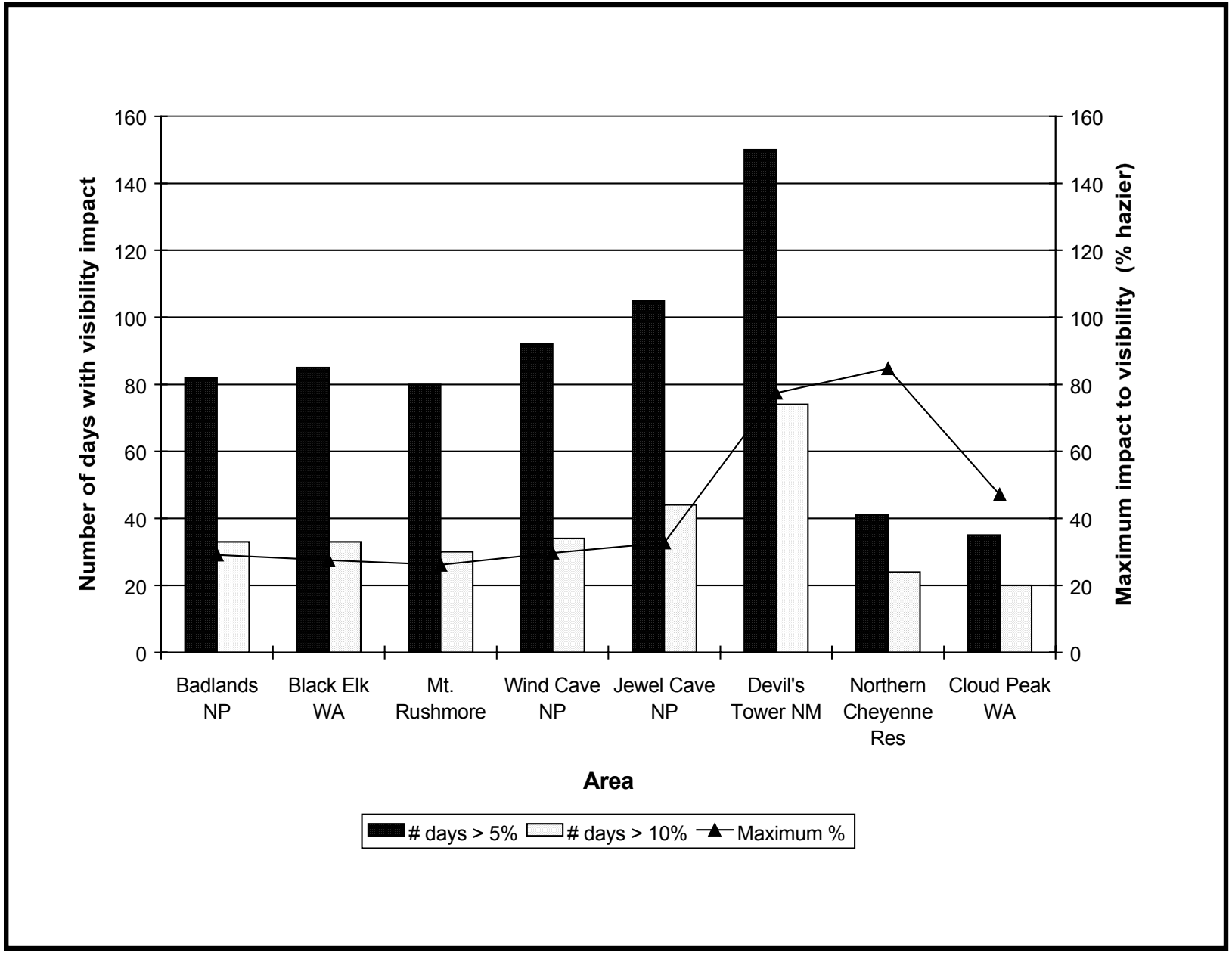

Figure H-6. Worst Case Visibility Impact from DM&E Project.